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A PROSPECTING REPORT ON THE WARD II GROUP OF MINERAL CLAIMS

MINING DIVISION.....KAMLOOPS
NTS LOCATION.....92I/15W
LATITUDE.....50° 50.40'
LONGITUDE.....120° 45.5'
OWNER/OPERATOR .....DAVID A. WARD
AUTHOR OF REPORT.....DAVID. A WARD

25 OCTOBER 1985

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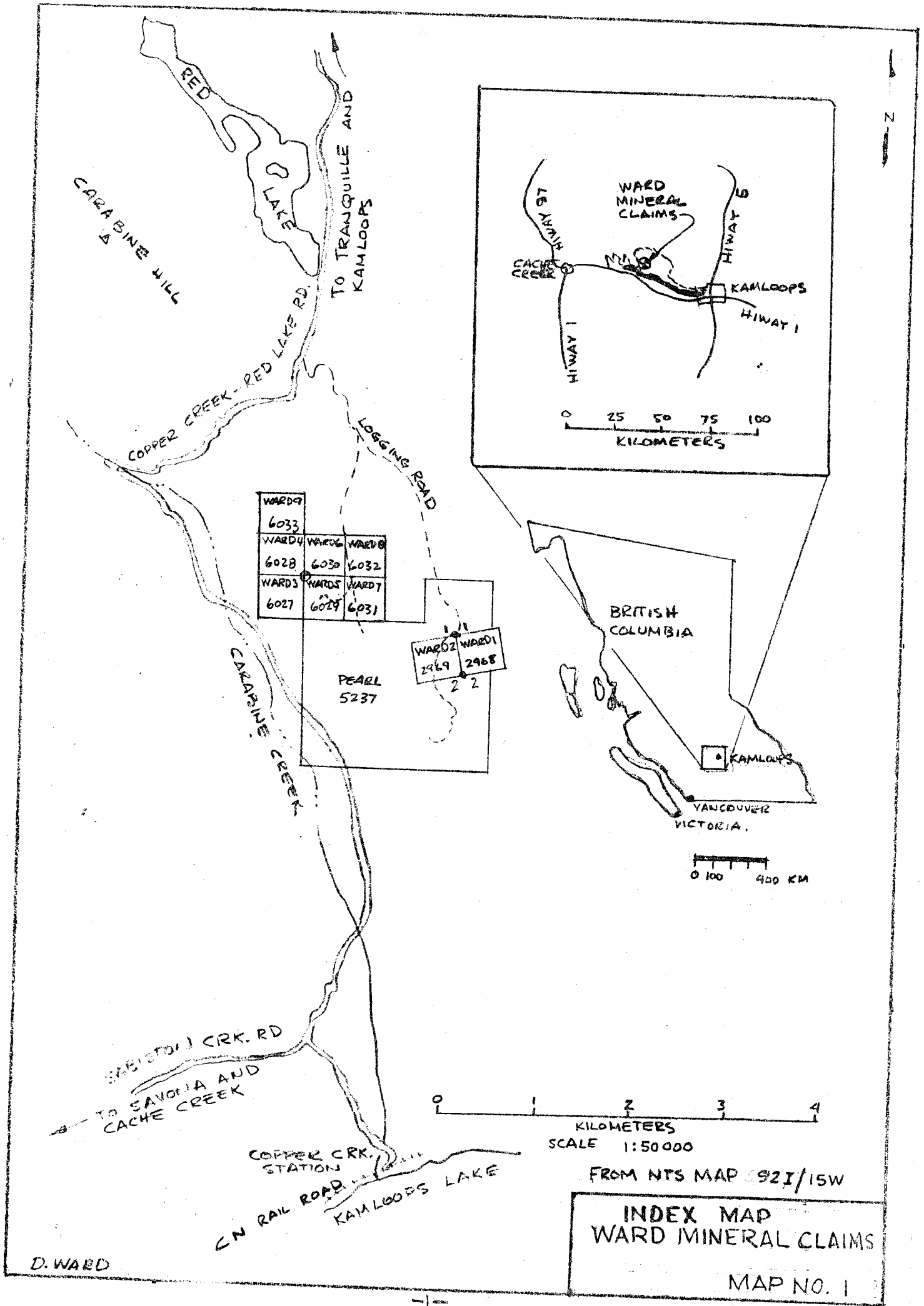

RED LAKE
CARABINE HILL
TO TRANQUILLE AND KAMLOOPS
COPPER CREEK - RED LAKE RD.
LOGGING ROAD
CARABINE CREEK
WARD 9 6033
WARD 4 6028
WARD 6 6030
WARD 8 6032
WARD 3 6027
WARD 5 6029
WARD 7 6031
WARD 2 2969
WARD 1 2968
PEARL 5237
SASKATOON CRK. RD
TO SAVONA AND CACHE CREEK
COPPER CRK. STATION
CN RAIL ROAD
KAMLOOPS LAKE
WARD MINERAL CLAIMS
HIWAY 97
HIWAY 1
CACHE CREEK
KAMLOOPS
0 25 50 75 100
KILOMETERS
BRITISH COLUMBIA
VANCOUVER
VICTORIA
0 100 400 KM
0 1 2 3 4
KILOMETERS
SCALE 1:50000
FROM NTS MAP 92I/15W
N
D. WARD
INDEX MAP
WARD MINERAL CLAIMS
MAP NO. 1

INTRODUCTION

The Ward II group of mineral claims is located between Red Lake and Kamloops Lake on the west flank of Hardie Mountain about 5.5 km north of Copper Creek Station on the Canadian National railroad. The claims are about 32 km from Tranquille by way of the Red Lake-Tranquille River road or 38 km by using the Sabiston Creek road. This road begins at the Trans-Canada highway about 300 m west of the bridge which crosses the outlet of Kamloops Lake. A logging road leaves the Red Lake road about 1 km south of Red Lake. The claims can be reached by following this road to the south for about 3.5 km (map 1).

The Ward II group of claims consists of the following seven 2-post claims:

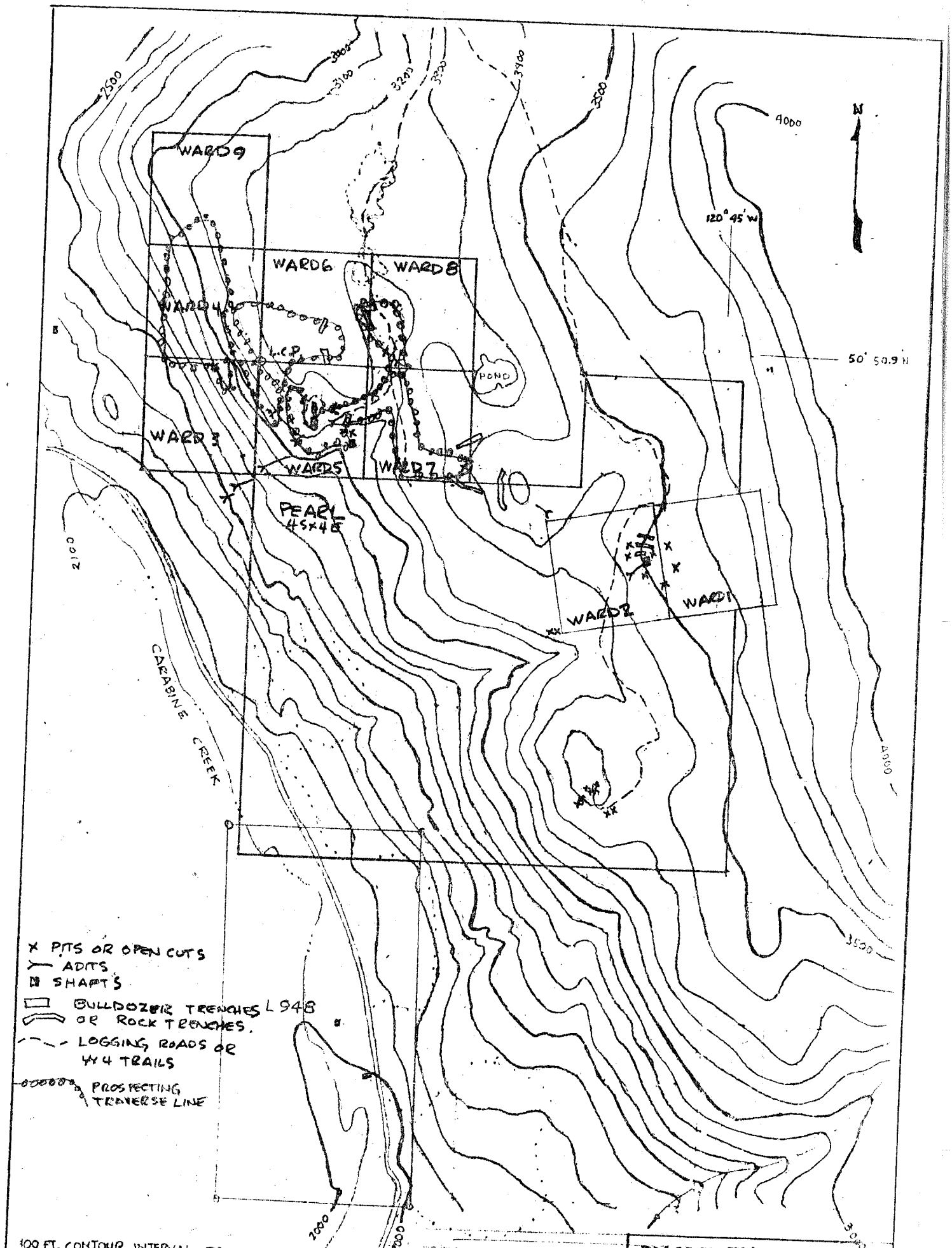
CLAIM NAME	MONTH OF RECORD	RECORD NO.
Ward 3	12	6027
Ward 4	12	6028
Ward 5	12	6029
Ward 6	12	6030
Ward 7	12	6031
Ward 8	12	6032
Ward 9	12	6033

The claims currently owned and operated by David A. Ward, are on a soil covered bench at an elevation of about 1000 m. The bench pitches steeply to the west near the western part of the claims (map 2).

The area in the vicinity of the claims was staked in 1885 for mercury. Several crown granted claims were issued but were subsequently revoked and the area was reopened for staking. Since then the area has been restaked numerous times every time the price of mercury is high. Savana Creek Gas and Oil Ltd controlled many claims in the area during the late 1960's when the price of mercury was very high for a very brief time. Placer Development Ltd had over 3700 ha staked in the area in 1980. These claims were subsequently cancelled.

Several adits, open cuts, pits, shafts and trenches were excavated during the early 1900's. In the early 1940's several wide trenches were excavated by the use of a bulldozer. Most of the explored occurrences of cinnabar on the claims do not constitute ore except for one possibility reported by Morrison (1970), "...a four foot width of mauve to tan aplite in which cinnabar is heavily disseminated...a grab sample...assayed 1.025% Hg."

The current owner's interest in the area is due to the wide-spread occurrence of anomalous quantities of mercury in the soil, the presence of what is believed to be propylitic alteration and the presence of narrow zones of intermediate argillic alteration which cut the propylitic alteration. It is believed that the combination of alteration and cinnabar mineralization suggests the possibility of other kinds of ore minerals being present at depth.


WARD9
WARD6
WARD8
WARD4
L.C.P.
POND
WARD3
WARD5
WARD7
PEARL
45x48
WARD2
WARD1
CARABINE CREEK
2500
3000
3100
3200
3300
3400
3500
4000
2100
4000
3500
2000
2000
3000
N
120° 45' W
50° 50.9' N
X PITS OR OPEN CUTS
ADITS
SHAFTS
BULLDOZER TRENCHES OR ROCK TRENCHES.
L948
LOGGING ROADS OR 4X4 TRAILS
PROSPECTING TRAVERSE LINE
100 FT. CONTOUR INTERVAL FROM NTS 92I/15W
500 0 500 1000
1:20000 METERS
PROSPECTING TRAVERSES
WARD II GROUP
APRIL 85 MAP NO. 2
D. WARD
KAMLOOPS MINING DIVISION, BRITISH COLUMBIA

Approximately 60 ha were prospected. Particular attention was paid to finding old exploration work described in earlier reports, soil sample locations and picket lines. Over 100 rock samples were collected during the time from 11 April through 17 April 1985. Many rock samples were taken from areas described by Morrison (1970) so that his identification of rocks and subsequently his geological mapping could be verified.

While prospecting, mineralized float was discovered on the slope below an area where Morrison had identified a linear band of anomalous quantities of mercury in the soil. The float consists of sheared latite porphyry mineralized with closely spaced calcite veinlets and cinnabar. The cinnabar occurs as small specks and is very finely disseminated in the matrix of the latite porphyry.

Various aspects of exploration and geology in the area of the claims were described by Stevenson (1940), Cockfield (1948), Mathews (1948) and Morrison (1970). The area is included in an unpublished doctoral thesis by Ewing (1981) and an open file report on the Ashcroft map area by Monger and McMillan (1984).

DETAILED TECHNICAL DATA AND INTERPRETATION

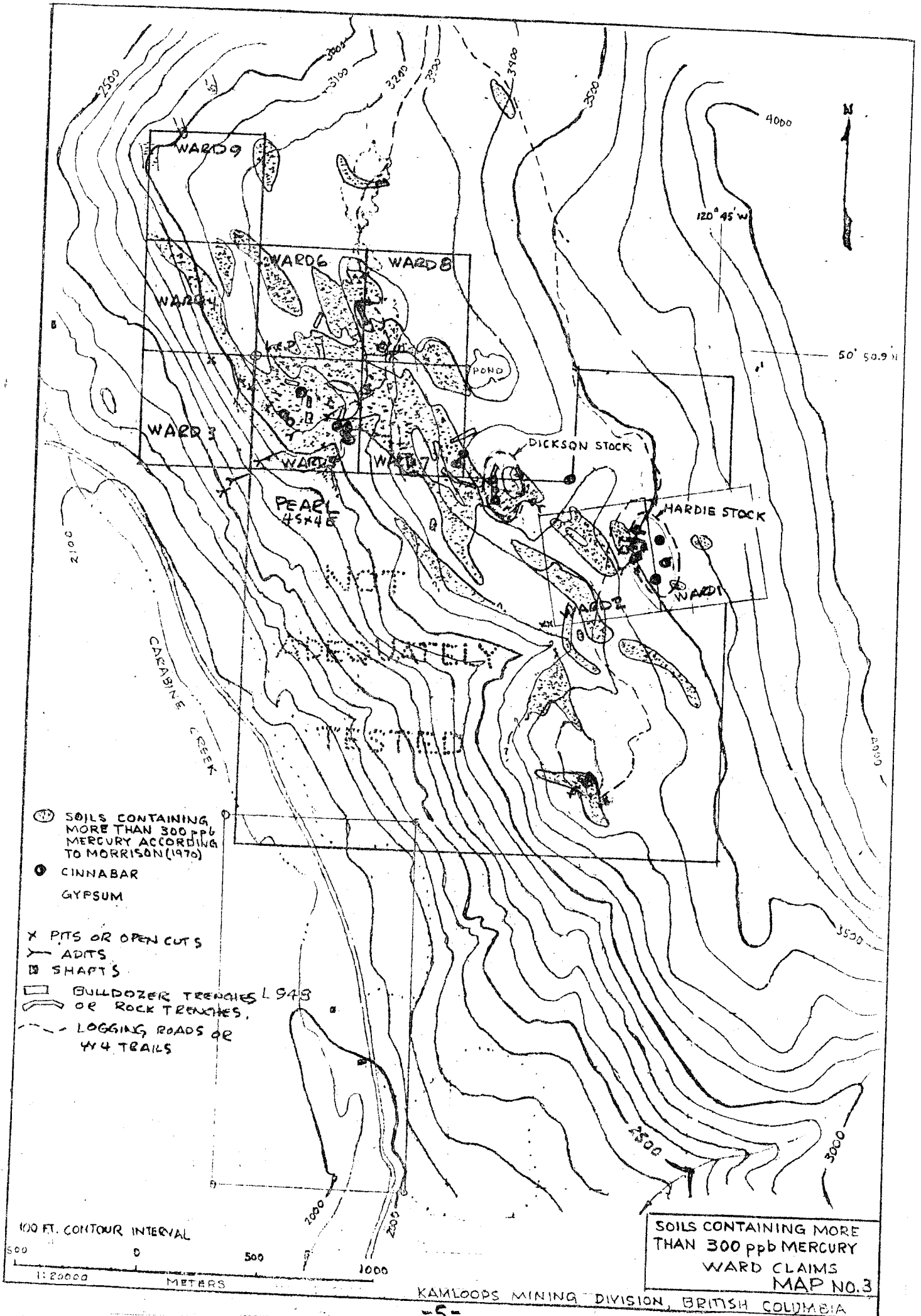
A review of the extensive literature concerning the genesis of hydrothermal ore deposits suggests that the wide spread occurrence of mercury soil anomalies and cinnabar in areas of wide spread alteration of calc-alkaline volcanic rocks indicate the presence of blind ore deposits. Reports concerning the occurrences of mercury in British Columbia indicated that the Carabine Creek area was well suited to test this hypothesis.

The geological map of the Ashcroft area by Monger and McMillan (1984) shows Tertiary rocks intruding upper Triassic volcanics in an area about 5.5 km north of Kamloops Lake on the east side of the Carabine Creek valley. The source of information for mapping this intrusive was the doctoral thesis of Ewing (1981) who based his mapping of the intrusive on the maps of Morrison (1970).

According to Morrison," The geochemical studies indicated a marked increase in mercury content in soils overlying the felsite intrusive. This was predictable since all known cinnabar occurrences in the Carabine Creek-Hardie Mountain area are either within or closely associated with felsite." He found background levels of mercury in the soils over the "felsite"to be about 300 ppb (map 3). Morrison mapped the areal extent of his "felsite", in part, by assuming that it was present where ever mercury levels exceeded 300 ppb.

It is very unusual to find such elevated mercury concentrations in unaltered intrusives. Consequently, it is believed that what ever the rock was originally, either intrusive or volcanic, it has now been hydrothermally altered. This is partly indicated by the numerous occurrences of cinnabar and the presence of anomalous concentrations of mercury in the soils over a fairly large area as reported by Morrison.

In order to make an educated guess as to the presence and location of suspected blind ore bodies in the area, it is important to determine


WARD 9
WARD 6
WARD 8
WARD 4
WARD 3
WARD 5
WARD 7
POND
DICKSON STOCK
HARDIE STOCK
PEARL
4S×4E
WARD 1
WARD 2
CARIBINE CREEK
2500
3000
3100
3200
3300
3400
3500
4000
2100
4000
3500
3000
2000
2500
120° 45' W
50° 50.9' N
SOILS CONTAINING MORE THAN 300 ppb MERCURY ACCORDING TO MORRISON (1970)
CINNABAR
GYPSUM
PITS OR OPEN CUTS
ADITS
SHAFTS
BULLDOZER TRENCHES OR ROCK TRENCHES.
LOGGING ROADS OR 4W4 TRAILS
100 FT. CONTOUR INTERVAL
500 0 500 1000
1:20000 METERS
SOILS CONTAINING MORE THAN 300 ppb MERCURY
WARD CLAIMS
MAP NO. 3
KAMLOOPS MINING DIVISION, BRITISH COLUMBIA

whether the host rock is an intrusive or a pile of calc-alkaline volcanic rocks. Therefore, during the seven days spent prospecting the claims, particular attention was paid to locating specific outcrops that Morrison described in his report. For example, he mentioned, "...pink aplite..." at 91N,40E; "...light grey to mauve aplite..." at 92N,42E; "...pinkish grey, fine grained feldspar porphyry..." at 93N, 43E; "...mauve to tan aplite in which cinnabar is heavily disseminated..." at 101+60N, 40+60E and "...a felsite apophysis about 20 feet wide cuts dark brownish to purplish grey, coarsely porphyritic basalt of the Carabine suite..." at 80N,53E.

In order to locate these places, it was necessary to first find Morrison's picket lines, base lines and old soil sample locations. The picket lines were indicated by the presence of linear trails slashed through the bush. The soil sample sites were recognized as evenly spaced depressions located along the slashed picket lines. The remains of old identification stakes with legible markings were occassionally found near some of the soil sample sites.

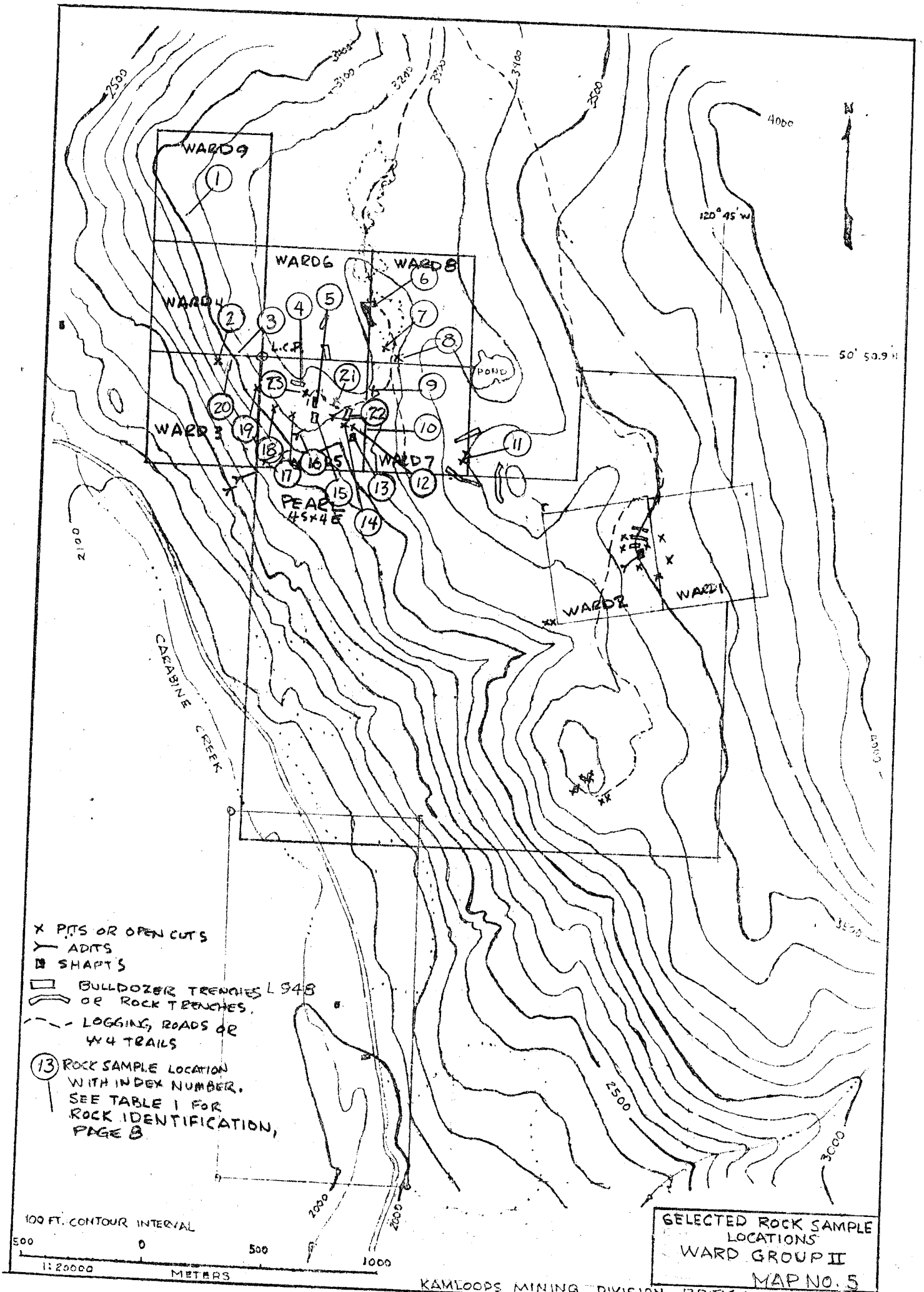
In this report, sample locations (13), (12), (14), (23) and (11) (map 5 and table 1) correspond to Morrison's locations mentioned above. For example, (13) corresponds to 91N,40E.

Rocks collected at the five sites were examined by the use of a hand lens, dilute hydrochloric acid and a needle. All of these rocks contained clay minerals, carbonates, minor amounts of brown to black iron oxides and small greenish yellow aggregates of chlorite or talc. It appears that the original rocks might have been andesites that were propylized.

Most descriptions of propylized andesites include chlorite, epidote, carbonates and pyrite. However, the term "propylite", as proposed by Von Richtofen, was used by Becker (1882) to describe the altered andesites at the Comstock Lode in Nevada which were not extensively changed except for a small amount of argillation, addition of water and minor amounts of carbonates and sulfides.

In this report the term "propylitic alteration" or "propylization" is applied to a rock which is presumed to have been an andesite that has been altered so that the feldspars have been converted to various amounts of clay minerals, carbonates have been introduced and there are minor amounts of iron oxides. At the surface these rocks are various shades and tints of brown. It is suspected that at depth the color will change to a drab green which is the color that is usually associated with propylitic alteration.

Rocks found at 101+60N,40+60E, location (23) in this report (map 5 and table 1) are variable in color and composition. An old exploration pit exposes a northwesterly trending contact between an unknown width of white and light yellow altered rock which is suspected to have originally been an andesite. Northeast of the contact the alteration is less intense and is a tan color. This grades into tan colored rock which contains minor amounts of disseminated cinnabar. The intensity of the cinnabar mineralization increases toward the northeast as the color of the rock changes from tan to brownish gray with a tint of



KAMLOOPS MINING DIVISION, BRITISH COLUMBIA

LIST OF IDENTIFIED, SELECTED ROCKS
(See map 5 for locations)

(1) Travertine, erroneously described as "strong sulfide leaching" by Morrison.

(2) Andesites(?), altered, reddish brown to brownish gray, four flows in vertical distance of 2.5 m, about 30° dip to west.

(3) Latite porphyry, light gray, bedrock.

(4) Propylite (?)

(5) Andesite porphyry with propylization and intermediate argillic alteration.

(6) Gypsum in soils

(7) Andesite porphyry with propylitic alteration.

(8) Andesite porphyry with intermediate argillic alteration containing occassional micro-vugs with very small pale yellow crystals.

(9) Andesite porphyry (?) with biotite, sheared, silicified, minor cinnabar and horizontal slickensides.

(10) Andesite porphyry (?) with biotite and feldspar phenocrysts with biotite rims.

(11) Propylite and andesite porphyry with minor cinnabar.

(12) Andesite porphyry (?) with biotite, sheared, argillized with carbonates and minor disseminated cinnabar.

(13) Andesite porphyry (?), sheared, brecciated, mineralized with carbonates and minor cinnabar in thin films and disseminations.

(14) Dolomite with disseminated cinnabar from dump (?) of caved adit.

(15) Propylite

(16) Andesite porphyry (?) argillized, silicified with pyrite and microvugs lined with quartz, from dump of caved adit.

(17) Propylite with carbonate veins.

(18) Andesite with propylitic and intermediate argillic alteration.

(19) Andesite with propylitic and intermediate argillic alteration.

(20) Latite porphyry (float) brecciated with argillation, carbonate veins and disseminated cinnabar.

(21) Andesite porphyry with intermediate argillic alteration.

(22) Propylite

(23) Propylite with abundant fine-grained disseminated cinnabar.

TABLE 1. List of identified, selected rocks. See Map 5 for locations.

lavender. Farther to the northeast, the brownish gray rock is barren of cinnabar. This change takes place over a distance of about 1.5 m.

Morrison described this brownish gray rock at this location as a "tan to mauve aplite..." However, samples of rock at this location were determined to be composed of clay minerals, carbonates, minor amounts of iron oxides and occasional specks of greenish yellow talc or chlorite. It is suggested that this rock is propylitically altered andesite which has been later mineralized with cinnabar and is not an aplite as suggested by Morrison.

Morrison mentions, "...trenching in the immediate area has proven unsatisfactory in the past because of the difficulty in reaching unleached rock." He mapped the area where this trenching was done as "felsite". However, rock samples taken from these trenches, sites (4), (5), (16) and (22) (map 5 and table 1 of this report) were found to be composed of clay minerals and carbonates with minor brown to black iron oxides. Again, it is suggested that these rocks are propylitically altered andesites and not a felsite intrusive.

At Morrison's 80N53E location he described, "...a felsite apophysis about 20 feet wide cuts dark brownish to purplish grey, coarsely porphyritic basalt of the Carabine suite." Rocks examined at this site, site (11) in this report, are hydrothermally altered andesites not felsite. The coarsely porphyritic volcanic rock is an andesite and not a basalt.

Morrison was apparently refering to this same situation when he mentioned, "The main bodies of felsite are dyke swarms containing abundant material of the Carabine suite." However, these "felsite...dyke swarms" are apparently interfingering of zones of propylitic alteration with unaltered volcanic rocks. This indicates that erosion has exposed the very irregular contact between the propylized rock and the overlying volcanic rocks.

Morrison's "aplite" or "felsite" at other locations were identified during the course of this work as propylized andesites some of which are porphyritic.

According to Morrison, "Mercury anomalies...have their maximum intensities adjacent to the contacts between the felsite and the dark Carabine rocks."

This situation is normally encountered with cinnabar mineralization. It is the result of high thermal, oxygen and pH gradients which are encountered when a mineralizing solution carrying mercury invades a host rock relatively near the paleo-surface. The thio-complexes of mercury which are in the hydrothermal solutions become unstable where there are increased concentrations of oxygen, decreased pH and lower temperatures. These conditions result in the deposition of cinnabar if the solutions contain mercury thio-complexes.

It is concluded that the very irregular contact between a zone of propylitic alteration and the overlying volcanic rocks has been exposed by erosion on the Ward II group of claims. And, that an intrusive emplaced at depth is responsible for the alteration and cinnabar mineralization.

Morrison also mentions, "...the felsite is commonly silicified and pyritized. The pyrite contributes to a distictive tan to yellowish brown, soft weathered surface." It is believed that Morrison was describing two different situations. The distinctive tan to yellow brown weathered surfaces were found in the vicinity of the old bulldozer trenches and appears to be the weathered surface of the propylite. The silicified and pyritized rock appears as narrow, curving vein-like zones within the propylite.

Rocks collected at sites (5), (7), (8), (19) and (21) in this report (map 5) were tough, light gray, porphyritic and composed of completely argillized feldspar with minor amounts of very fine grained pyrite associated with the argillized feldspars and occassional small blebs of clear quartz and quartz lined micro-vugs. These rocks cut the brown colored propylite and contain little if any carbonates while the propylites contain abundant carbonates.

On a weathered surface these gray, porphyritic rocks are stained yellowish gray to dark brown but they are not soft. Oxidation of the pyrite contributes to the surface coloration. In some cases the pyrite forms very thin rims around argillized feldspar phenocrysts outlining them in black giving the impression that very small letters have been formed in the rock.

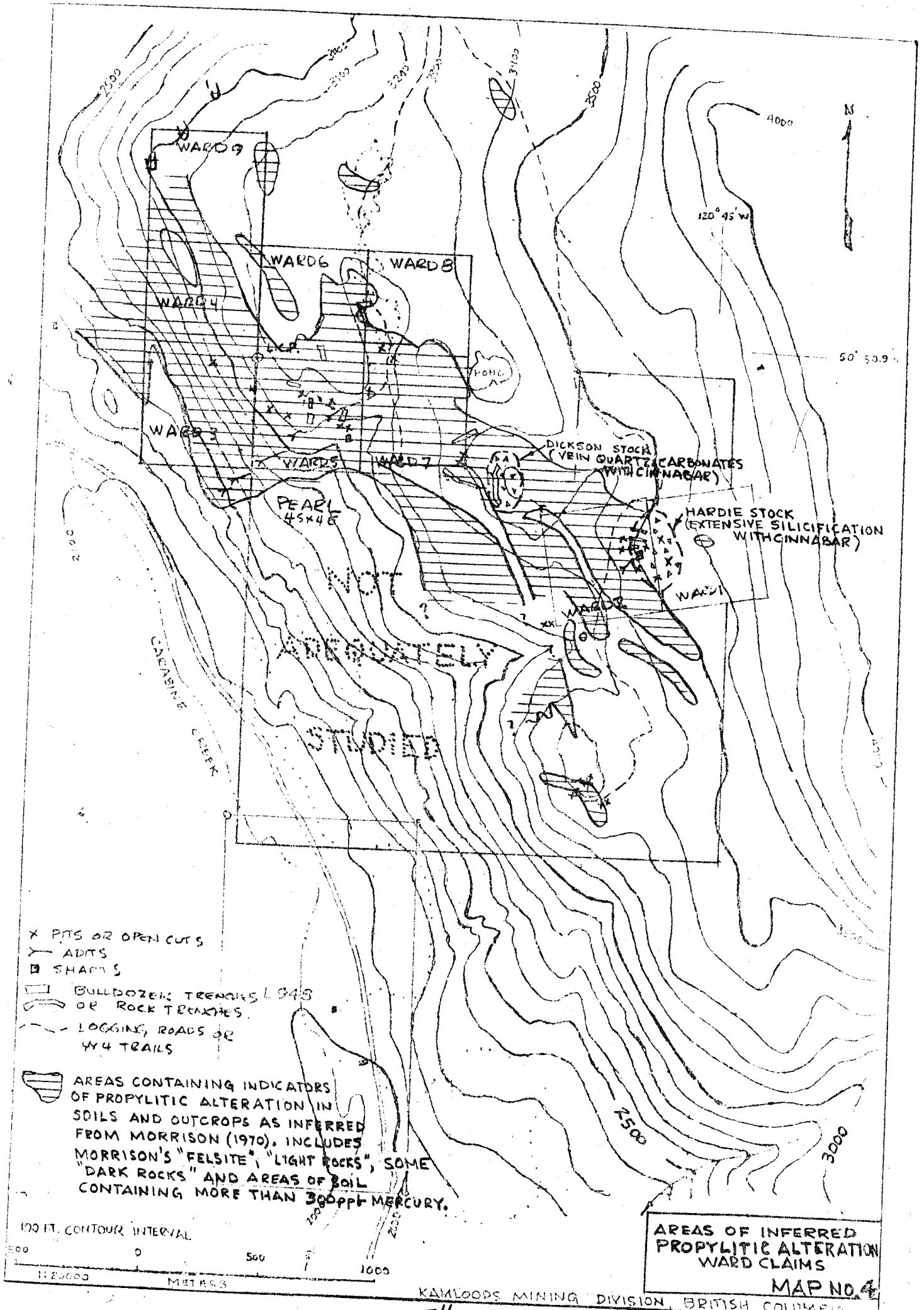
It is concluded that these altered, gray and porphyritic rocks represent zones of intermediate argillic alteration of andesites that cut the propylite.

Areas containing indications of propylitic alteration in soils and outcrops, as inferred from this work and the work of Morrison, are shown on map 4. These areas include Morrison's "felsite", "light rocks" some "dark rocks" and areas of soil containing more than 300 ppb of mercury as determined by Morrison.

On the basis of what has been observed so far, it appears that the upper fringes of a propylitic zone of alteration and intermediate argillic alteration have been exposed by erosion. It is suggested that these zones of alteration will increase in size at depth.

The sequence of intrusion and mineralization, that took place after the formation of the pile of calc-alkaline volcanic rocks in the area of the Ward claims, appears to be as follows:

1) Emplacement of two small porphyritic stocks (maps 3 and 4)
2) Emplacement of a deeper stock which has not yet been exposed by erosion or exploration
3) Development of zones of alteration above the lower stock
4) Faulting and shearing of all rocks including the exposed stocks, dikes and propylite
5) Introduction of mineralizing solutions which deposited cinnabar and carbonates
6) Erosion which has exposed the upper fringes of propylitic alteration and small zones of intermediate argillic alteration.



AREAS OF INFERRED PROPYLITIC ALTERATION WARD CLAIMS

MAP NO. 4

KAMLOOPS MINING DIVISION, BRITISH COLUMBIA

Mineralized latite porphyry float was found while prospecting the slope below a long linear area which contains anomalous quantities of mercury in the soils as indicated by Morrison. This area trends about N30°W through the western part of the claims. The mineralization consists of closely spaced veinlets of calcite varying from hair-line width to about 7mm and cinnabar in small grains and dust-like particles in the matrix. Both the feldspar phenocrysts and the matrix have been argillized to varying degrees.

The pieces of latite porphyry float have feldspar phenocrysts which are about 3 to 10 mm long. Small flakes of biotite having a maximum length of about 2 mm are also present. The color of the matrix varies in color from a slight pinkish smoky gray to light gray.

An attempt was made to find the source of the float by prospecting up the slope to the east. At rock sample site (3) unmineralized latite porphyry gravel was found in the roots of a wind fallen tree. A small trench was dug about 15 m to the east and it exposed unmineralized latite porphyry bed rock at a depth of 0.5 m.

Further work needs to be done to explore the soil mercury anomalies that Morrison identified in this area. Particular attention should be paid to exploring the anomaly that extends northwesterly through the Ward 3 and 4 claims. This zone appears to have a maximum width of about 100 m and a length greater than 750 m. Trenching in the area with a backhoe should be considered in order to determine whether the latite porphyry is intrusive or extrusive and to determine the extent of the mineralization that appears to be associated with it. Trenching of other anomalies identified by Morrison should also be considered.

Much of the work that Morrison did in this area was very good. However, it is believed that he made a mistake in identifying the propylitic alteration as a felsite intrusive. It is regrettable that this error was repeated by Ewing (1980) and Monger and McMillan (1984).

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ITEMIZED COST STATEMENT

Ferry Fares:	
9 April 1985 Truck and driver...$24.00	
20 April 1985 Truck and driver... 24.00	
48.00	$48.00
Truck use:	
1204 km @ $0.30/km.....	361.20
Food, meals and sundries:	
9 days (9 April to 20 April).....	270.00
Travel time:	
Powell River to claims, one person...12hrs	
Claims to Powell River, one person...12hrs	
Total travel time.24hrs @$10.00/hr	240.00
Work:	
Prospecting from 10 April to 16 April 1985	
7 days at 10 hrs/day.....70hrs@$10.00/hr.....	700.00
Preparation of maps: 10 hrs@$25.00/hr.....	250.00
Rock identification and report preparation:	
24 hrs at $60.00/hr.....	1440.00
Typing of report: 8hrs@ $8.25/hr.....	66.00
Total	$3375.20

The only person involved in this work was David A. Ward.

AUTHOR'S QUALIFICATIONS

The author graduated from Washington State University in 1951 with a Batchelor of Arts in Physical Science with Honors and has had some post graduate courses in geology while pursuing a PhD in economic geology which has not been completed. He has had courses in general geology, structural geology, optical mineralogy, stratigraphic paleontology, historical geology and elements of mining.

Over the past years he has been employed in a variety of occupations. Upon graduation from university he was employed by the American Zinc, Lead and Smelting Co. as a miner and was subsequently promoted to a technical assistant in the engineering department before being drafted for the Korean War. Later, he worked for the Boeing Aircraft Company as a tool design engineer. Following that, he was employed by Western States Copper Corp. to evaluate the economic potential of mineral claims in the "Four Corners" area which includes the states of Utah, Colorado, Arizona and New Mexico. He has taught chemistry, physics and mathematics and was employed as a research analyst at the Washington State Institute of Technology.

In 1967 he came to Canada and taught electronics and industrial science. He left teaching in 1976 and since that time has been engaged in a variety of enterprises including real estate, timber, farming and prospecting.

David A. Ward

David A. Ward